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| 09/901,095 | 07/10/2001 | Mutsumi Kimura | 040499.01 | 8396 |

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EXAMINER

GHYKA, ALEXANDER G

ART UNIT PAPER NUMBER

2812

DATE MAILED: 08/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/901,095

Applicant(s)

KIMURA ET AL.

Examiner

Alexander G. Ghyka

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 50-52,55,60-64,67,69,70 and 101 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 50-52,55,60-64,67,69,70 and 101 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

ALEXANDER GHYKA
PRIMARY EXAMINER

Av 2812
Alex Ghyka

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

The previous rejection is withdrawn in view of Applicants' arguments. The following new rejection is made. Accordingly, this Office action is non-final.

Claims 50, 51, 52, 55, 60-64, 67, 69, 70 and 101 are under consideration.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 50-52, 55, 60-64, 67, 69, 70 and 101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiba (US 6,180,294) in view of Musho et al (5,202,261) and Hirai et al (5,477,352).

The present claims generally require forming a pattern on a substrate by deposition of an organic material comprising the steps of depositing a semiconducting organic material in a solvent onto a substrate by ink jet printing; and evaporating the solvent, whereby the organic material remains on the substrate.

Shiba et al disclose a color filter having a substrate and an ink absorptive resin layer. Shiba disclose forming a pattern on a substrate using a liquid crystal composition by ink jet printing. See column 5, line 60 to column 6, line 51, column 8, lines 20-45, column 35, Example 72 and Figures 1, 2 and 4. Shiba disclose polymer based materials as required by some of the present dependent claims. See columns 3 and 4. The pattern is then metallized as required by present claims 63, 67 and 101. See column 7, lines 18-35. Shiba et al also disclose that the polymer layer can be formed by "spin coating, roll coating, bar coating, spray coating or dip coating, and this coating means is not particularly restrictive". See column 6, lines 40-45.

Therefore, Shiba et al disclose all of the presently claimed limitations with the exception using an ink jet printer to form the polymer layer and of evaporating a solvent, whereby the organic material remains on the substrate.

Musho et al disclose the formation of conducting polymers into layers or films by dissolving them in organic solvents and using a batch process such as spin coating or ink jet printing. See column 22, line 55 to column 23, line 20. Moreover, Musho et al disclosed the utility of the conducting polymers in light emitting devices. See column 2, lines 65-70.

Hirai et al disclose a liquid crystal display device with liquid crystal dispersed or impregnated in a perfluoro-type polymer of a perfluoroalkyl acrylate or methacrylate. Hirai et al disclose that dispersing the liquid crystal material in the transparent fluoro-type polymer (or copolymer) can be conducted by mixing the fluoro-type polymer (or copolymer) the liquid crystal material and the solvent to form a solution, applying the solution to the substrate, and then evaporating the liquid crystal material in the fluoro type polymer. See column 3, line 52 to column 4, line 12.

It would have been obvious for one of ordinary skill in the art, at the time of the invention, to use an ink jet printer to disperse the polymer and arrive at the present limitations as the Shiba reference discloses the use of spincoating to form the layer, and the Musho reference discloses the equivalence of spincoating and ink jet printing in the formation of polymer layers. One of ordinary skill in the art would have found it obvious to use ink jet printing as disclosed by Musho et al, in the process as described by Shiba et al, for its known benefit in the art in forming polymer layers as disclosed by the Musho reference. Furthermore, it would have been obvious to one of ordinary skill in the

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art to form an LCD as disclosed by Shiba et al, by using the method of Hirai et al which involves combining with an organic solvent and evaporating the organic solvent, for its known benefit in the art in dispersing the liquid crystal material in a polymer. A known method (mix with solvent and evaporate solvent of Hirai et al) of forming a known device (the LCD of Shiba et al) is *prima facie* obvious. As the references are drawn to light emitting devices and their manufacture, their combination would be *prima facie* obvious.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander G. Ghyka whose telephone number is (571) 272-1669. The examiner can normally be reached on Monday through Thursday during general business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AGG
August 9, 2005

ALEXANDER GHYKA
PRIMARY EXAMINER

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